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Jaap Andre Haitzma

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EXAMINER

PATEL, NIRAV B

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,211	<b>Applicant(s)</b> HAITSMA, JAAP ANDRE	
	<b>Examiner</b> NIRAV PATEL	<b>Art Unit</b> 2135	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2008 (RCE).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 12-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/11/08</u> .   | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Applicant's submission for RCE filed on May 13, 2008 has been entered. Claims 1-8 and 12-27 are pending. Claims 16, 26 are amended and Claim 27 is newly added claims by applicant.

### Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter.

Specification is [For, Claim 15] is objected to for failing to define "A machine-readable medium...". See 37 CFR 1.75(d) (1) and MPEP § 608.01 (o). The machine readable medium is not explicitly defined in the specification. For the purposes of examination, "machine readable medium" will be treated as **a tangible storage medium**.

### Claim Objections

3. Claims 7 and 8 are objected to because of the following informalities:  
Claim 7 recites "A method of generating a logging report .....and repeating the method operations as claimed in claim 1". A method of generating a logging report of claim 9 depends on A method to match a set of input fingerprint as claim in Claim 1, which is improper form of dependent claim.

Appropriate correction is required.

### **Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-8, 12, 13, 15, 16, 20-27 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1, 12, 15, 16, 26, recites, selecting/select a first fingerprint block..., finding/find a first matching fingerprint block..., selecting/select a further fingerprint block....; locating/locate a corresponding fingerprint block...; determining/determine if the corresponding fingerprint block matches said further fingerprint block...., are directed to mathematical algorithm and/or computation without a practical application that produces a useful, concrete and tangible result.

Appropriate correction is required.

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 6-8, 12-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cano et al. al. (IDS filed 04/13/2006, "Robust Sound Modeling for

Song Detection in Broadcast Audio”, hereinafter “Cano”) and further in view of Wang et al (US Patent No. 6,990,453).

As per claim 1, Cano teaches:

selecting a first fingerprint block of said input set of fingerprint blocks; finding a first matching fingerprint block in said database that matches the first fingerprint block [page 5, left column, under Approximate Matching, discloses the audio fingerprint matching, which compares fingerprints from observed audio signals against reference fingerprints in a database (i.e. exact matching)]; selecting a further fingerprint block from said set of input fingerprint blocks at a second position in the input set of fingerprint blocks relative to the first position; locating a corresponding fingerprint block in said database at the position corresponding to the second position in the set of fingerprint blocks; and determining if the corresponding fingerprint block matches said further fingerprint block [page 5, right column, under Special Properties, wherein it is disclosed that AudioGenes have additional time information which is a significant difference to standard string applications, and that this information is used in the an approximate matching algorithm (see also Fig. 6)]. Cano teaches matching method based on the fingerprints as above.

Cano does not expressively mention fingerprints at distinct positions/locations.

However, in an analogous art, Wang discloses a method for matching the fingerprint blocks wherein fingerprints blocks located at distinct positions/locations as shown in Figs. 1, 4, 6, 9A. Wang teaches: the first fingerprint block associated with a first position, selecting a further fingerprint block from said set of input fingerprint blocks, the further

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fingerprint block associated with a second position in the input set of fingerprint blocks relative to the first position associated with said first fingerprint block, the second position being distinct from the first position; determining if the corresponding fingerprint block matches said further fingerprint block [Fig. 1, 4, 6, 9A, col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67, col. 14 lines 46-56, col. 16 lines 4-32].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Wang with Cano, since one would have been motivated to recognize a content (sound, audio video...etc.) that is highly distorted or contains a high level of noise [Wang, col. 1 lines 16-18].

As per claim 2, the rejection of claim 1 is incorporated and Cano discloses: iteratively repeating selecting a further fingerprint block, locating a corresponding fingerprint block in said database and determining if said located fingerprint block matches said selected further fingerprint block for different predetermined positions relative to the first selected fingerprint block [Page 5, right column under Matching Process, where it is disclosed under that a short subsequence of AudioDNA from an observed audio stream are continuously extracted and compared with the fingerprints in the database. The results of exact match are stored in a balanced tree data structure for further processing steps, and that an approximate matching is used to detect similarities of longer sequences starting at the position of the exact matches].

As per claim 3, the rejection of claim 1 is incorporated and Cano discloses: wherein the second position is an adjacent position [Page 4, left column, discloses AudioDNA, wherein it is disclosed that the spacing between blocks is around 10 ms and blocks are overlapped to give longer analysis window about 25 ms].

As per claim 6, the rejection of claim 1 is incorporated and Cano discloses: receiving an information signal; dividing the information signal into sections; and generating said set of input fingerprint blocks by calculating a fingerprint block for each section [page 4, left column, Fingerprint Extraction: AudioDNA, where the input audio is divided into blocks and from each block some features is derived].

As per claim 7, the rejection of claim 1 is incorporated and Cano discloses: Cano discloses a method of generating a logging report for an information signal comprising: dividing the information signal into similar content segments; generating an input fingerprint block for each segment; and repeating the method steps as claimed in claim 1 so as to identify each of said blocks [(page 4, left column, Fingerprint Extraction: AudioDNA, where the input audio is divided into blocks and from each block some features is derived, see also rejection of claim 1 above)].

As per claim 8, the rejection of claim 7 is incorporated and Cano discloses:, wherein said information signal comprises an audio signal, and wherein each segment corresponds to at least a portion of a song [Page 4, left column, discloses AudioDNA,

wherein it is disclosed that the spacing between blocks is around 10 ms and blocks are overlapped to give longer analysis window about 25 ms].

As per claim 12, it encompasses limitations that are similar to limitations of claim 1. Thus, it is rejected with the same rationale applied against claim 1 above.

As per claim 13, the rejection of claim 12 is incorporated and Cano discloses: a database arranged to store fingerprints identifying respective information signals and meta-data associated with each signal [page 2, Audio Fingerprinting, Fig. 1 and associated text, i.e. *building the database* based on acoustic characteristics].

As per claim 14, the rejection of claim 12 is incorporated and Cano discloses: a receiver for receiving an information signal, and a fingerprint generator arranged to generate said set of input fingerprint blocks from said information signal [Fig. 1 and associated text , page 2, left column, Audio Fingerprinting, where two operating modes are discussed, wherein actual audio identification of the unlabelled audio is processed in order to extract the fingerprint, then the fingerprint is compared to the fingerprints of the database].

As per claim 15, it encompasses limitations that are similar to limitations of claim 1. Thus, it is rejected with the same rationale applied against claim 1 above.



As per claim 16, Cano teaches:

receiving a plurality of input fingerprint blocks, the plurality of fingerprint blocks to represent an input information segment; selecting a first fingerprint block from the plurality of input fingerprint blocks; determining a first matching fingerprint block in the reference database that matches the first fingerprint block [page 5, left column, under Approximate Matching, discloses the audio fingerprint matching, which compares fingerprints from observed audio signals against reference fingerprints in a database (i.e. exact matching)]; determining a further fingerprint block at a second position in the plurality of input fingerprint blocks; in the reference database, determining a corresponding fingerprint block in said database at the position corresponding to the second position; and comparing the further fingerprint block and the corresponding fingerprint block [page 5, right column, under Special Properties, wherein it is disclosed that AudioGenes have additional time information which is a significant difference to standard string applications, and that this information is used in the an approximate matching algorithm (see also Fig. 6)].

Cano teaches matching method based on the fingerprints as above.

Cano does not expressively mention fingerprints at distinct positions/locations.

However, in an analogous art, Wang discloses a method for matching the fingerprint blocks wherein fingerprints blocks located at distinct positions/locations as shown in Figs. 1, 4, 6, 9A. Wang teaches: the first fingerprint block associated with a first position, selecting a further fingerprint block from said set of input fingerprint blocks, the further fingerprint block associated with a second position in the input set of fingerprint blocks

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relative to the first position associated with said first fingerprint block, the second position being distinct from the first position; determining if the corresponding fingerprint block matches said further fingerprint block [Fig. 1, 4, 6, 9A, col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67, col. 14 lines 46-56, col. 16 lines 4-32].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Wang with Cano, since one would have been motivated to recognize a content (sound, audio video...etc.) that is highly distorted or contains a high level of noise [Wang, col. 1 lines 16-18].

As per claim 17, the rejection of claim 16 is incorporated and Wang teaches: identifying the information segment as a reference information segment from the reference database in response to the positive match [Fig. 1, 4, 6, 9A, col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67, col. 14 lines 46-56, col. 16 lines 4-32].

As per claim 18, the rejection of claim 17 is incorporated and Wang teaches: the identifying of the information segment as the reference information segment is in response to real time monitoring [col. 6 lines 35-42, 61-65, col. 8 lines 50-56, 61-67, col. 9 lines 62-67].

As per claim 19, the rejection of claim 17 is incorporated and Wang teaches: the real time monitoring is associated with a radio broadcast [col. 6 lines 61-65, col. 15 lines 25-44].

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As per claim 20, the rejection of claim 12 is incorporated and Cano discloses:

the predetermined relationship is based on one fingerprint block being adjacent to another fingerprint block [Page 5, right column under Matching Process, Page 4, left column, discloses AudioDNA, wherein it is disclosed that the spacing between blocks is around 10 ms and blocks are overlapped to give longer analysis window about 25 ms].

As per claim 21, the rejection of claim 16 is incorporated and Wang teaches:

the information segment comprises an image [col. 5 lines 36-59].

As per claim 22, the rejection of claim 21 is incorporated and Wang teaches:

the predetermined relationship is based on two fingerprint blocks corresponding to two image segments located along a diagonal of the image [col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67].

As per claim 23, the rejection of claim 16 is incorporated and Wang teaches:

the determining of the further fingerprint block comprises utilizing a length of the input information segment, in addition to utilizing the first position [col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67].

As per claim 24, the rejection of claim 12 is incorporated and Wang teaches:

the information signal comprises a video signal [col. 5 lines 36-59].

As per claim 25, the rejection of claim 12 is incorporated and Wang teaches:

the information signal comprises an audio signal [col. 5 lines 36-59].

As per claim 26, it encompasses limitations that are similar to limitations of claim 16. Thus, it is rejected with the same rationale applied against claim 16 above. Further, Wang teaches: the input information signal comprising content without meta-data [col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67].

As per claim 27, the rejection of claim 1 is incorporated and Wang teaches:

Wang teaches: the input information signal comprising content without meta-data [col. 6 lines 35-42, col. 8 lines 50-56, 61-67, col. 9 lines 62-67].

6. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cano et al. al. (IDS filed 04/13/2006, "Robust Sound Modeling for Song Detection in Broadcast Audio", hereinafter "Cano") in view of Wang et al (US Patent No. 6,990,453) and in view of Burges et al (US Patent No. 7,082,394).

As per claims 4 and 5, the rejection of claim 1 is incorporated and Cano teaches: wherein a match in said finding step is deemed to have occurred if the number of differences between the selected fingerprint block and the least one fingerprint block in said database is below a first threshold (page 5, right column (Matching Process0, wherein a the actual result (matching music title or "unknown") of the approximate

matching process is derived from an empiric model using similarity values  $S$  computed over length of the compared sequence).

Cano does not teach a match in said determining is deemed to have occurred if a number of differences between the selected further fingerprint blocks and the located fingerprint block is below a second threshold, wherein said second threshold is different from said first threshold.

However, in an analogous art, Burges is directed to Noise-Robust Feature Extraction using Multi-layer Principal Component Analysis, wherein two fingerprints per audio clip are used: the initial one, and a 'confirmatory' fingerprint right after initial one which allows a threshold for acceptance to be lowered (col. 5, lines 20-41).

Therefore, it would have been obvious to one of ordinary skill in the art to employ the teachings of Burges in the method and system of Cano for a second threshold different from the first the first threshold for several reasons suggested by Burges (col. 5, lines 25-37).

### **Response to Amendment**

7. This written action is responding to the Request for Continued Examination (RCE) dated May 13, 2008. A new reference by Wang et al is found and used in combination with various previously cited prior art. See new ground of rejection and therefore, the arguments are moot in view of the new ground(s) of rejection.

### **Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIRAV PATEL whose telephone number is (571)272-5936. The examiner can normally be reached on 8 am - 4:30 pm (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***NBP***

***7/14/08***

/Hosuk Song/

Primary Examiner, Art Unit 2135